

第4圖 ささぐりやぶまを (*Bæhmeria hatsumae* SATAKE) ノ基準品 ($\times 1/5$)

longis 10–18 mm latis apiculatis, apice breve caudatæ, subtus pubescentes, supra valde vel plus minus scabridæ, hispidulæ, cystolithis distincte punctiformibus, trinerves; petioli 3–6 cm longi, glabrati vel sparse ciliati. Spicæ femineæ axillares, sursum simplices deorsum interdum ramosæ, interrupte glomeratæ. Achænia obovato-oblongata, apice obtusa brevissime tubulosa densius hispidula, basi cuneata pubescentia, usque 1.5–2 mm longa 1 mm lata. Semina ellipsoidea usque 0.7 mm longa. Flores masculi ignoti.

Nom. Jap. *Sasaguri-yabumao*

(nov.)

Hab. Kyûsyû: Prov. Tikuzen, in urbe Sasaguri-mati (S. HATSUMA, Nov. 8, 1936–typus in Herb. Imp. Univ. Tokyo).

Destr. Endemica.

Diatoms collected by Mr. Yoshikazu Okada in Nippon

I. Mountain bog diatoms flora from Prov. Sinano.

By

B. V. Skvortzov

スクボルツォフ: 岡田喜一氏採集ノ日本産珪藻類

The Algæ which form the subject of this report were obtained from the materials forwarded to me through the kindness of SUGIURA, Director of

Imperial Fisheries Institute Tokyo, and Mr. Yoshikazu OKADA, the algologist of the same Institute. The present paper is the result of the examination of Diatoms collected by Mr. Yoshikazu Okada in a mountain bog from Kama-gaike, Mt. Kirigamine, Prov. Sinano, Central Nippon, October 2, 1930. The material consists of pure diatom masses with small filaments of mosses, and a careful examination of this sample gives the following results.

1) The diatom flora was represented by great number of frustules of *Frustulia rhomboides* and var. *saxonica* and with more less abundant of *Eunotia robusta*, *E. Frickei* var. *elongata*, *E. nipponica*, *Neidium iridis* var. *nipponica*, several species of *Anomoeoneis*, *Pinnularia gibba* var. *nipponica*, *P. major* var. *sagensis* and var. *nipponica* and filaments of *Stenopterobia intermedia*.

2) 42 different diatoms are found in this sample and they are all freshwater diatoms.

3) About 33% of all forms belong to northern and alpine elements. They are *Amphicampa hemicyclus*; *Peronia erinacea*; *Eunotia robusta*, *E. exigua* var. *bides* and var. *compacta*, *E. alpina* and var. *minor*; *Actinella punctata*; *Anomoeoneis exilis*, *A. seriens* var. *brachysira* and f. *thermalis*; *Navicula subtilissima*; *Pinnularia appendiculata* var. *nipponica*, *P. gentilis* var. *sibirica*; *Cymbella amphioxys*; *Surirella delicatissima*; *Stenopterobia intermedia*.

4) The tropical elements are represented only by *Eunotia Frickei* var. *elongata* reported from Demerara River of South America.

5) Several Japanese diatoms have been recognised, as *Pinnularia gibba* var. *nipponica* known from Kizaki Lake, *Pinnularia major* var. *nipponica* reported from Biwa Lake, *P. major* var. *sagensis* found in neogene freshwater deposits from Saga Prefecture.

6) About 24% of all diatoms are proposed as new to science. They are *Eunotia alpina* var. *minor*, *E. monodon* var. *paucistriata*, *E. nipponica*; *Neidium iridis* var. *nipponica*; *Anomoeoneis Okadae*; *Pinnularia appendiculata* var. *nipponica*, *P. Sugiurae*, *P. gentilis* var. *subacuta* and var. *sibirica*; *Cymbella sinica* var. *nipponica*; *Surirella delicatissima* var. *nipponica*.

This paper includes detailed description and drawings of all found forms. The diagrams were made by E. Leitz Apochromat 2 mm and Compense Okular 4.

Description of species.

Melosira granulata (EHR.) RALFS; FR. HUSTEDT, Bacillar. (1930) 87-88, fig. 44. (Fig. 1-24).

Valve cylindrical with distinct pseudosulkus and sulkus; large granules in spiral lines; $6.8\ \mu$ long, $6\ \mu$ wide; rows of granules 15, granules 16 in $10\ \mu$. Infrequent. A freshwater diatom.

Tabellaria fenestrata (LYNGB.) KÜTZ; FR. HUSTEDT, Bacillar. (1930) 122-123, fig. 99. (Fig. 1-25).

Valve linear, undulate in the middle part, ends distinctly capitate; $32\ \mu$ long, $2.5\sim 3.4\ \mu$ wide. Infrequent. Reported from littoral zone and in plankton of lakes.

Asterionella formosa HASSAL; FR. HUSTEDT, Bacillar. (1930) 147, fig. 156. (Fig. 2-16)

Valve from front view narrow linear with broad ends; from side linear, from one end to another slightly attenuate; ends capitate, one larger than the other; $37\ \mu$ long, $2\ \mu$ wide. Infrequent. A plankton species of freshwater.

Amphicampa hemicyclus (EHR.) KARSTEN.; A. SCHMIDT, Atlas Diatom. (1911) Taf. 270, figs. 24-26; *Pseudo-Eunotia hemicyclus* (EHR.) GRUN., van HEURCK, Synopsis (1880), Pl. XXXV, fig. 23. (Fig. 1-8, 9)

Valve lunate, dorsal margin arcuate; end reflexed and slightly attenuate and subacute; ventral margin convex; $24\sim 26\ \mu$ long, $4.2\ \mu$ wide; striae 14 in $10\ \mu$; no terminal pores. Infrequent. A northern and alpine species.

Peronia erinacea BRÉB. et ARN.; FR. HUSTEDT, Bacillar. (1930) 166, fig. 202. (Fig. 1-17, 18).

Frustule from front and from side views clavate, with subtruncate and usually constricted apex; $27\ \mu$ long, $2.3\ \mu$ wide; raphe linear and distinct; transverse striae 15 in $10\ \mu$. Common. Subalpine species. Reported from Aoki Lake in Nippon.

Eunotia robusta RALFS.; FR. HUSTEDT, Bacillar. (1930) 171, fig. 203. (Fig. 1-1~3)

Valve arcuate, with $8\sim 18$ dorsal ridges or crenae which decrease in relative size in proportion to their number; $51\sim 111.5\ \mu$ long, $12\sim 13.6\ \mu$ wide; striae

radiate, 10~11 in 10 μ . Common. Frustules are forming long fasciæ. A alpine species.

Eunotia exigua (BRÉB.) GRUN. var. **bidens** HUST; FR. HUSTEDT, Bacillar. (1930) 176, fig. 224. (Fig. 1-5)

Valve lunate, dorsal biundulate and arcuate; ends capitate; 13.6 μ long, 3.4 μ wide; striæ 18 in 10 μ . Infrequent. A alpine diatom.

Eunotia exigua (BRÉB.) GRUN. var. **compacta** HUST; FR. HUSTEDT, Bacillar. (1930) 176, fig. 225. (Fig. 1-4, 12, 27).

Valve lunate, dorsal moderately curved, ventral nearly straight; ends capitate; 17~28 μ long, 2.1-2.5 μ wide; striæ fine, about 18~20 in 10 μ . Common. A alpine species.

Eunotia pectinalis (KÜTZ) RABH. var. **minor** (KÜTZ) RABH. FR. HUSTEDT, Bacillar. (1930) 182, fig. 238. (Fig. 1-11).

Valve arcuate with subcapitate ends; 35.7 μ long, 5 μ wide; striæ 15 in 10 μ . Infrequent.

Eunotia pectinalis (KUTZ.) RABH. var. **minor** (KUTZ.) RABH, f. **impressa** EHR. FR. HUSTEDT, Bacillar. (1930) 182, fig. 239. (Fig. 1-7, 13).

Valve linear-lanceolate, dorsal arcuate and reflexed; 25.5~35 μ long, 4.2 μ wide; striæ 12~14 in 10 μ . Infrequent.

Eunotia alpina (NÄG.) HUST.; FR. HUSTEDT, Bacillar. (1930) 185, fig. 252. (Fig. 1-10).

Valve linear-lunate with parallel margins and slightly capitate and rounded ends; 35.7 μ long, 1.9 μ wide; striæ very fine, indistinct. Common. Reported from alpine and mountaneous districts.

Eunotia alpina (NÄG.) HUST. var. **minor** SKV., var. nov. (Fig. 1-28).

Differt a typo valvis minoris, linearibus ad marginem parallelis, cum polis obtusis, 17 μ longis, 2 μ latis. In aquis stagnalis alpestris prope Kamagaike, Nippon Centralis. (legit Yoshikazu OKADA).

Valve almost straight, linear, slightly arcuate; 17 μ long, 2 μ wide; striæ 18~20 in 10 μ . Smaller than the type. Infrequent.

Eunotia Frickei HUST. var. **elongata** HUST; A. SCHMIDT, Atlas Diatom. (1913) Taf. 288, fig. I. (Fig. 1-26, 29, 30)

Valve linear-lunate with parallel margins and broad rounded ends; 72~

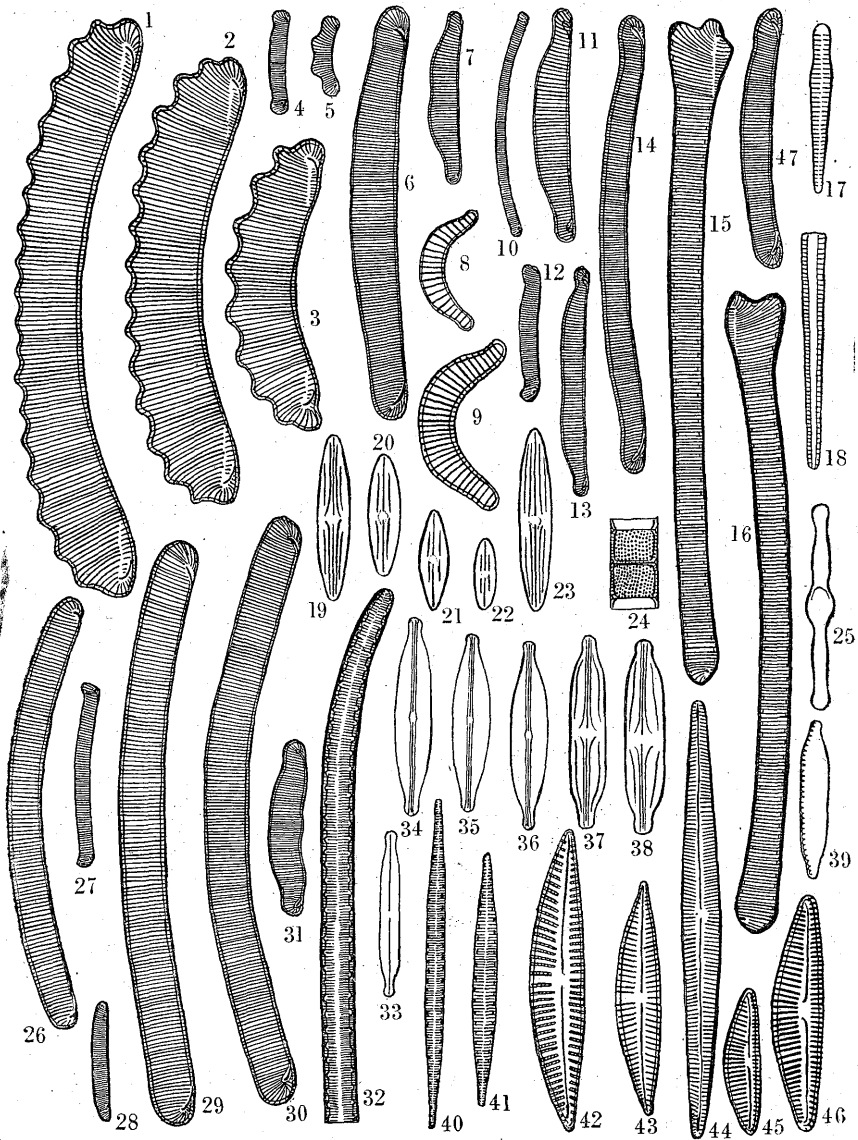


Fig. 1. 1-3. *Eunotia robusta*; 4. *E. exigua* var. *compacta*; 5. *E. exigua* var. *bidens*; 6. *E. nipponica*; 7. *E. pectinalis* var. *minor* f. *impressa*; 8, 9. *Amphicampa hemicyclus*; 10. *Eunotia alpina*; 11. *E. pectinalis* var. *minor*; 12. *E.*

exigua var. *compacta*; 13. *E. pectinalis* var. *minor* f. *impressa*; 14. *E. monodon* var. *paucistriata*; 15, 16. *Actinella punctata*; 17, 18. *Peronia erinacea*; 19, 20. *Anomaneis serians* var. *brachysira*; 21. *A. serians* f. *thermalis*; 22, 23. *A. serians* var. *brachysira*; 24. *Melosira granulata*; 25. *Tabellaria fenestrata*; 26. *Eunotia Frickei* var. *elongata*; 27. *E. exigua* var. *compacta*; 28. *E. alpina* var. *minor*; 29, 30. *E. Frickei* var. *elongata*; 31. *E. monodon* var. *paucistriata*; 32. *Stenopterobia intermedia*; 33. *Navicula subtilissima*; 34-36. *Anomaneis exilis*; 37, 38. *A. Okadae*; 39. *Hantzschia amphioxys* var. *xerophila*; 40, 41. *Surirella delicatissima* var. *nipponica*; 42, 43. *Cymbella sinica* var. *nipponica*; 44. *C. amphioxys*; 45, 46. *C. ventricosa*; 47. *Eunotia nipponica*.

161 μ long, 6.8~13.6 μ wide; striae 10~15 in 10 μ ; terminal pores distinct. Common. Reported from Demerara River, South America.

***Eunotia monodon* EHR. var. *paucistriata* SKV., var. nov.** (Fig. 1-14.31)

Differt a typo stria angustis. Valvis modice arcuatis, subrostratis, ventre undulatis, 30.6 μ longis 5.1 μ ; striae 18 in 10 μ . In aquis stagnalis alpestris prope Kamagake, Nippon Centralis (leg. YOSHIKAZU OKADA).

Valve linear, slightly curved, dorsal arcuate, ventral almost straight; 30.6 μ long, 5.1 μ wide; striae very fine, about 18 in 10 μ . Differs from the type in more coarse striae. Common.

***Eunotia nipponica* SKV., sp. nov.** (Fig. 1-6, 47)

Valvis linearibus leniter flexis, ventre directis, dorso modice arcuatis cum polis vastis, subtruncatis; 54.4~66.3 μ longis, 6.8~8.5 μ latis; poris terminalis distinctis; striae delicatissimis, 18 in 10 μ . In aquis stagnalibus alpestris prope Kamagake, Nippon Centralis (leg. YOSHIKAZU OKADA).

Valve arcuate-linear with parallel margins and reflexed ends; 54.4~66.3 μ long 6.8~8.5 μ wide; striae 18 in 10 μ ; terminal pores distinct not close to the ends. Common. A species akin to *Eunotia monodon* EHR. var. *major* (W. SMITH) HUST.

***Actinella punctata* LEWIS.; A. SCHMIDT, Atlas Diatom. (1913) Taf. 291, figs. 15-22.** (Fig. 1-15, 16)

Frustule solitary, linear. Valve arcuate, rounded at one end and capitate at the other into a cup-shaped or lychnoid inflation; 68~95 μ long, 8.5~9 μ wide at capitate ends; surface with fine transverse striae, 15 in 10 μ and on

the margin distinctly punctate at intervals; terminal nodules at the both ends distinct. Infrequent. A alpine diatom, reported from North America, from Christiania in Norvege and from environs of Baikal Lake of Siberia (according Prof. L. B. REINHARD of Harkow, Russia.)

Frustulia rhomboides (EHR.) DE TONI ?; FR. HUSTEDT, Bacillar. (1930) 220, fig. 324. (Fig. 2-18)

Valve lanceolate, tapering from the middle to acute ends; $49.3 \sim 88 \mu$ long and $10 \sim 17 \mu$ wide; axial and central areas narrow-linear; central pores sometimes are removed from each other. Our valves are more narrow than the type. Abundant. Common in zwampy water.

Frustulia rhomboides (EHR.) DE TONI var. **saxonica** (RABH.) DE TONI; FR. HUSTEDT, Bacillar. (1930) 220-221, fig. 325. (Fig. 2-9).

Valve elliptical or rhombical-lanceolate with more or less attenuate sub-acute ends: $39 \sim 51 \mu$ long, $10 \sim 13 \mu$ wide; axial and central areas narrow-linear. Abun ant. A freshwater species.

Frustulia rhomboides (EHR.) DE TONI var. **elongata** KRIEGER; R. KOLK-WITZ und KRIEGER, Zur Okologie der Pflanzenwelt insbesondere der Algen, des Vulkans Panjer anglo in West-Java (1936) 82, Taf. X, fig. 16. (Fig. 2-15).

Valve linear-lanceolate, gradually tapering to acute ends; 90μ long, 10μ wide; axial and central are narrow linear; central pores removed from each other. Smaller than the type. Reported from mountain bogs of Western Java.

Neidium affine (EHR.) CLEVE var. **amphirhynchus** (EHR.) ELEVE; FR. HUSTEDT, Bacillar. (1930) 243, fig. 377. (Fig. 2-11)

Valve linear-lanceolate with parallel margins and subrostrate-obtuse ends; 61μ long, 13.6μ wide; striae slightly oblique, 20-21 in 10μ . Infrequent. A freshwater diatom.

Neidium iridis (EHR.) CLEVE var. **nipponica** SKV., var. nov. (Fig. 2-17).

Differt a typo polis late-obtusis; $78 \sim 170 \mu$ longis $19 \sim 49 \mu$ latis; striis 18 in 10μ . In aquis stagnalis alpinis prope Kamagaike, Nippon Centralis (leg. YOSHIKAZU OKADA).

Valve linear-lanceolate or subelliptical with slightly attenuate and broad

rounded ends ; $78\sim 170\mu$ long, $19\sim 49\mu$ wide; axial area narrow-linear, central suborbicular ; central pores reflexed in different directions ; terminal fissures distinct and double ; striae slightly oblique, punctate, 18 in 10μ at the margins interrupted by several distinct, longitudinal furrows. Differs from the type in its broad ends. Our valves are also akin to var. *conspicua* A. MAYER. Very common.

Stauroneis phoenicenteron EHR ; FR. HUSTEDT, Bacillar. (1930) 255, fig. 404. (Fig. 2-14)

Valve lanceolate with obtuse broad ends ; 136μ long, 27μ wide ; striae radiate, about 20 in 10μ ; central area a broad transverse fascia. Infrequent. Common in freshwater.

Anomoeoneis exilis (KÜTZ.) ; FR. HUSTEDT, Bacillar. (1930) 264, fig. 429. CLEVE (Fig. 1-34, 35, 36)

Valve narrow-lanceolate with protracted, capitate ends ; $27\sim 30.6\mu$ long, $5.1\sim 6.5\mu$ wide ; raphe straight filiform ; axial and central areas indistinct ; striae very fine, more than 30 in 10μ . Common. Reported from alpine lakes and northern districts.

Anomoeoneis serians (BREB.) CLEVE var. **brachysira** (BRÉB.) HUST. FR. HUSTEDT, (Fig. 1-19, 20, 22, 33). Bacillar. (1930) 264, fig. 427.

Valve lanceolate, gradually tapering from the middle to the acute ends ; $12\sim 25.5\mu$ long, $3.4\sim 5.1\mu$ wide ; axial area narrow, central suborbicular ; striae in longitudinal rows, $10\sim 12$ in 10μ ; puncta about 30 in 10μ . A northern alpine diatom. Reported from freshwaters.

Anomoeoneis serians var. **brachysira** f. **thermalis** (GRUN.) HUST. ; FR. HUSTEDT, Bacillar. (1930) 264, fig. 428. (Fig. 1-21)

Differs from the var. *brachysira* in its rhomboid-lanceolate valves ; 17μ long, 42μ wide. Infrequent.

Anomoeoneis Okadae SKV., sp. nov. (Fig. 1-37, 38)

Valvis lineari-ellipticis ad marginem parallelis cum polis rostratis et subcapitatis ; $28.9\sim 30.6\mu$ longis, 6.8μ latis ; area axillaris angusta linearis, centralis rotundata ; striis radiantes ad raphem area angustata nuda, ad formam lyræ dilatata, interruptis ; striis ad medium 22, ad polis $25\sim 30$ in 10μ puncta

tatis. In aquis dulcis stagnalis alpinis prope Kamagaike, Nippon Centralis (leg. YOSHIKAZU OKADA).

Valve linear-elliptical with parallel margins and subcapitate ends; $28.9 \sim 30.6 \mu$ long, 6.8μ wide; axial area linear, central slightly radiate; striæ in the middle about $20 \sim 22$ slightly radiate, at the ends about $25 \sim 30$ in 10μ composed of elongated puncta, forming longitudinal rows. Common. A species akin to *Anomæoneis exilis* (KÜTZ.) CLEVE. Named in honor of Mr. YOSHIKAZU OKADA, algologist of the Imperial Fisheries Institute at Tokyo.

Navicula subtilissima CLEVE; FR. HUSTEDT, Bacillar. (1930) 235, fig. 475.

(Fig. 1-33)

Valve linear-lanceolate with parallel margins and capitate ends; 25.5μ long, 3.4μ wide; striæ very fine and indistinct. Common. A diatom reported from mountain districts.

Pinnularia appendiculata (AG.) CLEVE var. **nipponica** SKV., var. nov. (Fig. 2-13).

Valvis longioribus quam species, modice triundulatis et striis robustis; 61μ longis, 6.4μ latis; striis 12 in 10μ . In aquis stagnalis alpinis prope Kamagaike, Nippon Centralis (leg. YOSHIKAZU OKADA).

Valve linear-lanceolate, slightly triundulate and attenuate to the subcapitate ends; 61μ long, 6.4μ wide; axial area narrow; central area abroad transverse fascia; costæ radiate. 12 in 10μ , divergent in the middle and convergent at the ends; terminal fissures distinct, comma-shaped. Differs from the type in its more larger size and more robuste costæ. Infrequent. *Pinnularia appendiculata* is reported from mountainous districts.

Pinnularia subcapitata GREG. var. **Hilseana** (JANISCH.) O. MÜLL.; FR. HUSTEDT, Bacillar. (1930) 317, fig. 572. (Fig. 2-7).

Valve linear with parallel margins and capitate ends; 47.6μ long, 6μ wide; axial area linear, and narrow; central area a broad fascia; striæ radiate, 13-14 in 10μ , divergent in the middle and convergent at the ends. Infrequent. A freshwater species.

Pinnularia Sugiuræ SKV., sp. nov. (Fig. 2-8)

Valvis lineari-lanceolatis ad marginem parallelis, cum polis subrostratis; 42μ longis, 6.8μ latis; area axillaris angusta-linearis, centralis rotundata;

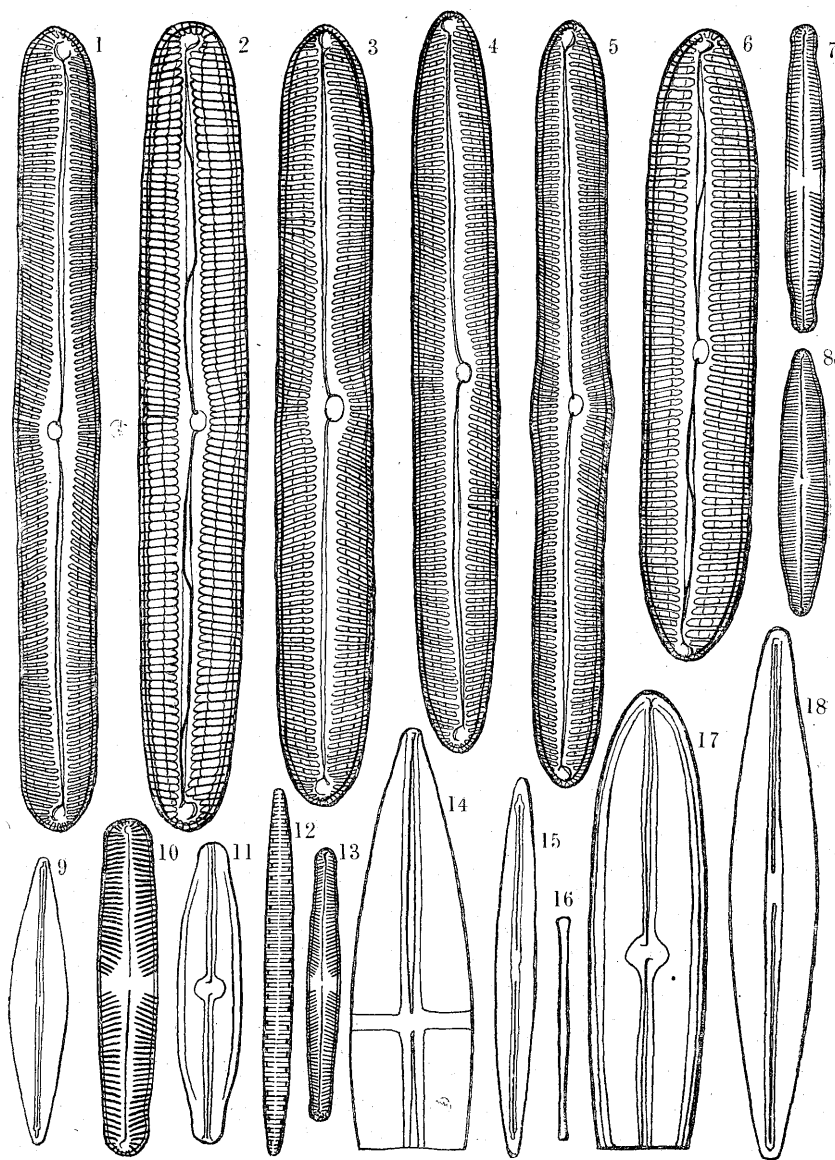


Fig. 2. 1, 5. *Pinnularia major* var. *sagensis*; 2. *P. gentilis* var. *sibirica*; 3, 4. *P. major* var. *nipponica*; 6. *P. gentilis* var. *subacuta*; 7. *P. subcapitata* var. *Hisleana*; 8. *P. Sugiurae*; 9. *Frustulia rhomboides* var. *saxonica*; 10. *Pinnularia gibba* var

nipponica; 11. *Neidium affine* var. *amphirhynchus*. 12. *Surirella delicatissima*; 13. *Pinnularia appendiculata* var. *nipponica*; 14. *Stauroneis phænicenteron*; 15. *Frustulia chomboides* var. *elongata*; 16. *Asterionella formosa*; 17. *Neidium iridis* var. *nipponica*; 18. *Frustulia rhomboides*.

raphe directa ad polos inflexa; costis modice radiantibus, apices versus convergentibus, 12 in 10μ . In aquis stagnalis alpinis prope Kamagaike, Nippon Centralis (leg. YOSHIKAZU OKADA).

Valve linear-lanceolate with almost parallel margins and attenuate at the subrostrate acute ends; 42μ long, 6.8μ wide; axial area about $1/4$ of the breadth of the valve; central area small and suborbicular; central pores distinct; raphe filiform with distinct terminal comma-shaped fissures; striae 12 in 10μ slightly radiate, divergent in the middle and convergent at the ends. A distinct species. Infrequent. Named in honor of Mr. SUGIURA, Director of Imperial Fisheries Intsitute in Tokyo. This species belong to Sect. *Pinnularia divergentes*.

Pinnularia gibba EHR. var. **nipponica** SKV., Diatoms from Kizaki Lake, Honshu Island, Nippon (1936) Pl. 7, fig. 10. (Fig. 2-10)

Valve linear, slightly triundulate with capitate, rounded ends; 64μ long, 11μ wide; axial area linear, central area a broad transverse fascia; striae robuste, radiate, 12 in 10μ divergent in the middle and convergent at the ends. Very common. Reported from Kizaki Lake.

Pinnularia major (KUTZ.) CLEVE var. **nipponica** SKV., Diatoms from Biwa Lake, Honshu Island, Nippon (1936) Pl. 8, fig. 6. (Fig. 2-3, 4.)

Valve linear with parallel margins and attenuate and rounded ends; $124\sim 161\mu$ long, $13.6\sim 20\mu$ wide; axial area about $1/3$ of the breadth of the valve; central area broad and suborbicular; raphe not complex; costae radiate, $7\sim 9$ in 10μ divergent in the middle and convergent at the ends. Common. Longitudinal band distinct. Reported from Biwa Lake. Nippon.

Pinnularia major (KÜTZ.) CLEVE var. **sagensis** SKV., Neogeeue Diatoms from Saga Prefecture, Kiushiu Island, Nippon (1936) Pl. 2, fig. 18. (Fig. 2-1,5)

Valve linear slightly gibbous in the middle; $161\sim 170\mu$ long, $17\sim 19\mu$

wide; axial area linear, less than $1/3$ of the breadth of the valve; central area broad and suborbicular; raphe filiform and not complex; striae $7\sim 10$ in 10μ , radiate, divergent in the middle and convergent at the ends, with distinct longitudinal band. Differs from the type in its more distinct longitudinal band. Differs from the type in its more distinct longitudinal band and in larger size. Common. Reported as fossil from neogene freshwater deposits in Saga Prefecture, Nippon.

***Pinnularia gentilis* CLEVE var. *subacuta* SKV., var. nov. (Fig. 2-6)**

Valvis linear-lanceolatis ad marginem parallelis, cum polis subeuneatis; 98.6μ longis, 17.5μ latis; area axillaris sat dilatata, centralis modice dilatata; costis divergentibus, in media valvarum parte radiantibus, apices versus convergentibus, 8 in 10μ ; striis longitudinalis distinctis; raphe complexa. Differt a var. *sibirica* polis subaeutis et valvis minoribus. In aquis stagnalis alpinis prope Kamagaike, Nippon Centralis (leg. YOSHIKAZU OKADA).

Valve linear-lanceolate, with parallel margins and slightly attenuate, subacute rounded ends; 98.6μ long, 17.5μ wide; median line slightly complex; axial area narrow, less than $1/4$ of the breadth of the valve; striae 8 in 10μ divergent in the middle and convergent at the ends, crossed by distinct broad longitudinal band. Differs from var. *sibirica* SKV. in its subacute ends and smaller size. Infrequent.

***Pinnularia gentilis* CLEVE var. *sibirica* SKV., var. nov. (Fig. 2-2)**

Valvis linearibus ad marginem parallelis cum polis rotundatis; 173μ longis, 17μ latis; area axillaris linearis, centralis dilatata; raphe complexa ad polos inflexa; costis divergentibus, apices versus convergentibus, 7 in 10μ . Differt a typo valvis angustioribus, polis modice rotundatis. In lacum Kenon, prope Chita, Transbaikalia Orientalis, Siberia et aquis stagnalis alpinis prope Kamagaike, Nippon Centralis (leg. YOSHIKAZU OKADA).

Valve linear, with parallel margins and broadly rounded ends; 173μ long, 17μ wide; median line slightly complex; axial area narrow, less than $1/3$ of the breadth of the valve; striae 7 in 10μ divergent in the middle, convergent at the ends, crossed by moderately broad band. Differs from the type in it more narrow and more slightly attenuate rounded ends. Common. Reported from Kenon Lake, near chita, Transbaikalia, Siberia.

Cymbella ventricosa KUTZ.; FR. HUSTEDT, Bacillar. (1930) 359, fig. 661. (Fig. 1-45, 46)

Valve asymmetrical, boat-shaped with arcuate dorsal and centrally gibbous, ventral margins; $30.6\sim 37\mu$ long. $6.8\sim 10\mu$ wide; striæ ventral 12, dorsal 9~12 in 10μ . Infrequent. A freshwater diatom.

Cymbella amphioxys (KUTZ) GRÜN.; FR. HUSTEDT, Bacillar. (1930) 354, fig. 648. (Fig. 1-44).

Valve naviculiform, asymmetrical, linear-lanceolate, tapering from the middle to acute ends; axial area narrow and linear, central area slightly enlarged; striæ radiate, divergent in the middle and convergent at the ends; striæ opposite the central pores with a distinct isolated puncta. Infrequent. A alpine diatom.

Cymbella sinica SKV. var. **nipponica** SKV, var. nov. (Fig. 1-43, 44)

Differt a typo polis attenuatis et striis robustis; $37\sim 44\mu$ longis, 8.5μ latis; striis ventralis 9~10, dorsalis 9~12 in 10μ . In aquis stagnalis prope Kamagaike, Nippon Centralis (leg. YOSHIKAZU OKADA),

Valve lanceolate-asymmetrical; dorsal margin arcuate, ventrally slightly gibbous; median line slightly arcuate; $37\sim 44\mu$ long, 8.5μ wide; axial area narrow, central broader, and from dorsal margin dilated to a transverse fascia; striæ radiate, 9~10 in 10μ . Common. Differs from the type in its more attenuate ends and more robuste striæ (see SKVORTZOV, Diatoms from Chentu, Szechwan, Western China. Pl. I, fig. 7; Pl. II, fig. 6; Pl. IV, fig. 7)

Hantzschia amphioxys (EHR.) GRÜN. var. **xerophila** GRÜN. Die Diatomeen von Franz-Josefs-Land (1884) 47. (Fig. 1-39)

Valve linear-lanceolate with almost parallel margins and subrostrate ends; 27μ long, 5μ wide; costæ 10~12, striæ 30 in 10μ . Rare. A freshwater diatom.

Surirella delicatissima LEWIS; FR. HUSTEDT, Bacillar. (1930) 436-437, figs. 846-847; A. SCHMIDT, Atlas Diatom. (1906) Taf. 266, figs. 3-5. (Fig. 2-12)

Valve narrow lanceolate with attenuate acute ends; 85μ long, 6μ wide; costæ reaching the pseudoraphe, 5 in 10μ ; striæ fine, about 16~18 in 10μ . Rare. A alpine diatom.

Surirella delicatissima var. **nipponica** SKV, var. nov. (Fig. 1-40, 41).

Valvis angustioribus quam species et striis delicatis; $37\sim 52.7\ \mu$ longis, $2.4\sim 2.8\ \mu$ latis; costis 6, striis 30 in $10\ \mu$. In aquis stagnalis alpinis prope Kamagaike, Nippon Centralis (leg. YOSHIKAZU OKADA).

Valve linear-lanceolate with parallel margins and elongate, attenuate acute ends; $37\sim 52.7\ \mu$ long, $2.4\sim 2.8\ \mu$ wide; costæ 6 in $10\ \mu$ short; striæ very fine, about 30 in $10\ \mu$; median area filiform. Differs from the type in its more narrow valves and coarser striæ. Infrequent. *Surirella delicatissima* is reported from mountainous districts.

Stenoptorobia intermedia LEWIS.; FR. HUSTEDT, Bacillar. (1930) 428-429, fig. 830. (Fig. 1-32)

Valve from front view linear, from valve view linear-sigmoid with parallel margins and attenuate acute ends; $17\ \mu$ long, $5.8\ \mu$ wide; striæ $23\sim 25$, costæ marginal 4 in $10\ \mu$. Common. æ Reported from mountain districts.

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